Alde Owner's Guide 1.0

Revised 10-4-2020

Introduction

The purpose of this guide is to make an attempt to summarize the basic information necessary to operate and maintain the Alde 3020 Heating System installed specifically in NuCamp RV products. As of this writing this information is scattered thru out a multitude of internet sites and various written owner and service manuals. No one source seems to contain all of the basic information the typical RV owner should have available. Additionally, most experienced campers know that it is very common to be without internet and even cell service in many camp locations. Going back to basics is part of camping and written instructions are "basic". Even if you plan to have a trained Alde technician do the work you still need to be able to communicate intelligently with the service center to help them diagnose the problem and determine if an appointment is needed. Based on my research there are often more ways to accomplish the same tasks with a few contradictions. I have presented the information as I found it and have not tried to differentiate between the good, bad and the ugly. Because Alde keeps making revisions and every installation varies somewhat customized instructions are nearly impossible it seems.

I trust this effort will make understanding and operating the Alde Heating System easier for you than it was for me and apparently for a lot of other RV owners. .

Disclaimer

This Guide is not sanctioned, sponsored or approved by any manufacturer or company associated with the RV Industry. The author is not an engineer but simply a person who has owned many RVs and simply wishes to make existing Alde information easily available to RV owners.

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Alde Functions & Components

The Alde heating/hot water system is typically found in higher end RVs. Alde products are made in Sweden and is partnered with Truma Corp to represent them in the US. The 3020 is a recent upgrade from their 3010 model. The 3030 model is being introduced in 2022.

The Alde system replaces the typical RV forced air furnace and hot water tank heater systems. Because the heating and hot water systems share the same heat sources the Alde unit takes up much less space. The hot water capacity is only 2.2 gallons compared to the typical 6–10-gallon RV water heater. Like most "standard" systems it uses LP gas and 120v electric heat sources. Unlike standard systems you can utilize gas and electric at the same time. Other than its compact size the primary benefits of the Alde system is that it provides a more even/comfortable heat and is practically silent as compared to the typically noisy forced air units. Its disadvantage is its complexity. The six primary system components are:

The Boiler & Bleeder Valve

Figure 1. Alde Compact 3020 boiler

The Control Panel & Circuit Board (brains)l

Figure 2. Alde control panel 3020 623

Expansion Tank & Convector

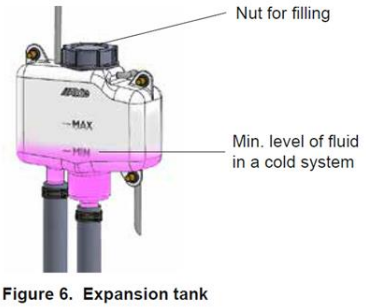
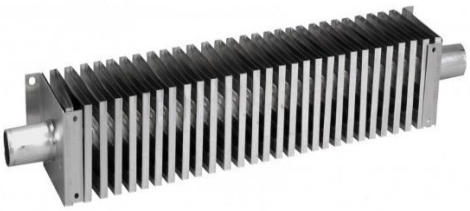


Figure 6. Expansion tank



If your dealer or NuCamp didn't let you know, NuCamp has a "knowledge base" available on the internet which answers a lot of questions about their different models/components as well as a handy search feature. **https://nucamprv.freshdesk.com/support/solutions**. This site will not answer every question but will save you a great deal of time and anguish. There also numerous NuCamp YouTube TechTalks. Much of it is referenced below.

Basic Operating Instructions

Preparing the system <u>before</u> turning on:

1. Fill RV fresh water tank.
2. Make sure all your water valves are in the correct setup. Make sure you are in camping season mode and not winterization mode. If you have a bypass valve, make sure the bypass valve is in the 'NORMAL' and not 'BYPASS' mode. See Nautilus Manual.
3. Turn on RV water pump and open hot water tap and allow to run for a few minutes to fill hot water (2+ gallons) tank and flush system.
4. Ensure your batteries are fully charged. Alde system requires 12 volts to operate.
5. Open LP valve and connect shore power. (Shore power breaker size will determine how you set your Alde Control Panel.) Alde required LP Gas to operate.

WARNING! Always turn the Alde System OFF before connecting or disconnecting 120V Shore Power. Failure to do this often causes the Alde 3.15a fuse to blow.

Starting the Alde System

Figure 2. Alde control panel 3020 623

There are numerous instructions for using the Alde control panel some of which are listed below. This is a very sophisticated system and you will need to refer to the Alde manual for more detailed instructions. Note: If the screen is still blank after attempting to turn it on you will need to determine why it is not getting 12v power. See trouble shooting section

Typical Menu: Alde Operating Manual starting on page 17

Tools Menu: Alde Operating Manual starting on page 20

May 2019 by NuCamp How to Set Your Alde Control Panel – Tech Talk
https://www.youtube.com/watch?v=ZB-JzYcxNQM

2017 Bob Earnshaw: Alde 3020 Heating Control
https://www.youtube.com/watch?v=4LzqMLF1lZk

June 2022 NuCamp Increasing Water Temperatures using panel settings/No Hot Water/Mixing Valve
https://nucamprv.freshdesk.com/support/solutions/articles/44001780906-alde-mixing-valve

July 2022 NuCamp Hot Water Issues
https://nucamprv.freshdesk.com/support/solutions/articles/44002354509-hot-water-issues

Regular Alde System Maintenance

Glycol/Antifreeze Level

When RV is in use, check the level every one to two months.

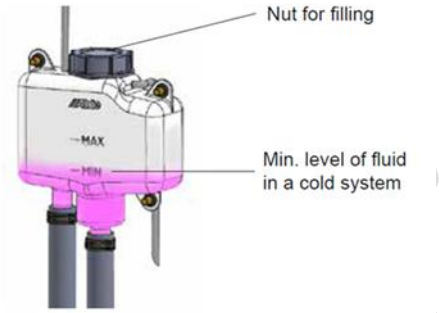


Figure 6. Expansion tank

1. Do not operate system without glycol/antifreeze.
2. Regularly check the fluid level in the expansion tank *(when cold)*. The markings on the side indicate the maximum and minimum fluid level. The level should be about one-half (½) inch above the minimum indicator in a cold tank.
   Adding to/filling the system: "The heating system must be filled with a **mixture** of water and glycol. Use only high quality ready-mixed glycol (with inhibitor) intended for aluminum heating systems. The heat transfer medium must be Propylene glycol-based boiler antifreeze. The antifreeze must meet FDA (GRAS) standards or be non-toxic fluid having a toxicity rating or class of 1, as listed in Clinical Toxicology of Commercial Products, 5th ed. If you are using concentrated glycol, the mixture should consist of 60% distilled water and 40% glycol. If the heating system will be exposed to temperatures below -15 °F (-25 °C), the glycol content must be increased but not to more than 50%. (Steve Bayne at Truma recommends a 50/50 mix at all times.)
3. If the fluid level falls for reasons other than evaporation, please check all joints, drain cocks and bleeder screws for leakage."
4. "Any containers used to carry the fluid must be spotlessly clean and the pipes in the system must be free of contamination. This will help inhibit the growth of bacteria in the system.
5. "Fill the heating system through the expansion tank, either manually or using the **Alde filling pump**, which both tops up and bleeds the system. To purchase a filling pump, contact your Alde dealer. For manual filling, remove the nut (figure 6) from the tank." Slowly pour the glycol mixture into the tank. Bleed the heating system (see directions 1.13). Top up with more liquid if the level has fallen after bleeding. Bleed a newly filled heating system regularly during the first days the heating system is in operation." Alde recommends using a trained technician when exchanging the Antifreeze.

"Do not mix different types of glycol; this can lead to coagulation of the glycol fluid."

Note: When referring to the heating system coolant Glycol and Antifreeze are used interchangeably. Do not confuse hot water tank antifreeze with heating system antifreeze.

Air Cushion

(Source-Alde Manual pg. 10)

"The heating system is designed to have an air space, called an air cushion, at the top of the tank. This air cushion is essential for absorbing pressure surges in the heating system. Always renew the air cushion in the heating system **after 10 days of use**. This can be done by opening the safety/drain valve (usually yellow) on the heating system for a few seconds. The air cushion allows expansion to take place and helps protect the heating system against pressure surges from the water pump."

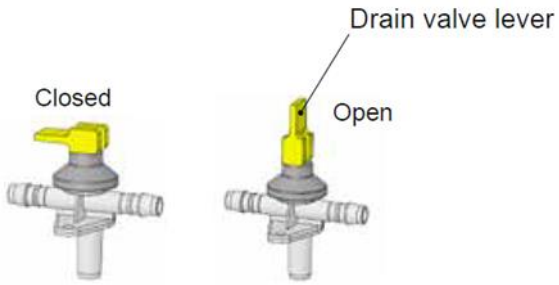


Figure 4. Safety/drain valve

"To maintain the air cushion, the hot water tank should be emptied after 10 days of use to help ensure that a new air cushion is formed in the heating system." Draining the hot water tank: See page 11 of Alde Manual.

IT IS HIGHLY RECOMMENDED YOU REVIEW ALL INTERNET SOURCES BEFORE YOU GO CAMPING. YOU MAY NOT HAVE ADEQUATE ACCESS TO THESE SITES AT ALL CAMPING AREAS. MUCH OF THE INFORMATION YOU NEED IS ONLY AVAILABLE ON THE INTERNET. THERE IS JUST TOO MUCH TO INCLUDE IN THIS "GUIDE".

THIS IS HIGH TECH STUFF AND NOT YOUR PARENT'S RV!

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Long-term Alde Maintenance Requirements

1. "The glycol mixture should be changed every second year to help ensure maximum corrosion inhibitor effectiveness." (Note: A new product recently introduced will last 5 years.)
2. Alde recommends a complete exchange be done by a qualified technician.

Caution: If you bleed the system NEVER open bleeder screws while the circulation pump is running. (I assume by turning off the Alde system at the control panel.)

NOTE: Alde changed the type of Glycol/Antifreeze on NuCamp units produced after 12/20/22
https://nucamprv.freshdesk.com/support/solutions/articles/44002156353-2021-glycol-change

Cleaning your Alde System

February 2022 NuCamp -Cleaning Instructions
https://nucamprv.freshdesk.com/support/solutions/articles/44001817301-cleaning-your-alde

DRAFT

WINTERIZING
Alde's Instructions
Storage and Winterization: pg. 12

"The heating system and its plumbing components should always be drained of fresh water when there is a risk of freezing and when the RV is not in use. The warranty does not cover frost damage."

For this reason it is advisable to follow the recommendation(s) below if the heating system is to be stored in a freezing environment or for long periods of time. At the start of the winter season or before traveling to a location where freezing conditions are likely; the heating system must be winterized.

Winterization can be accomplished using one of the two common methods of winterization used for RV water systems:

1. Drain the hot water tank in the heating system, refer to "Draining the hot water tank in the heating system using the combined safety/drain valve:" on page 11.

Draining the hot water tank in the heating system using the combined safety/drain valve:

⚠WARNING SCALDING INJURY

Never actuate the drain valve lever as long as the heating system is under water pressure and/or is still warm.

1. Switch off the fresh water pump. Consult your RV owner's manual to find the location of this control.
2. Open all water taps.
3. Open the safety/drain valve by turning the lever (see figure 4). Check your RV owner's manual to find the location of the safety/drain valve.
4. The hot water tank in the heating system will now drain directly below the vehicle through the safety/drain valve hose. Check that all the water is emptied out (about 2-3 gallons/7-10 liters). Leave the valve in the open position until the next time the boiler is used.

NOTICE

Ensure that the automatic check valve (see figure 5) is open and is allowing air to enter the boiler when it is being drained and that the hose is not blocked.

2. Antifreeze method: Follow the RV manufacturer's recommendations and fill the water system with a non-toxic antifreeze. Make sure that the antifreeze flows from each tap to complete the process. CERTAIN TYPE ANTIFREEZE??
3. Also: • Turn off the main power supply to the heating system. The main power supply should always be switched off when the vehicle is not being used. • Turn off the LP Gas supply tank. • When washing the vehicle, take care not to get water in the wall flue.

Nov 2020 Paul "The Air Force Guy" and Steve Bayne w/ Truma/Alde

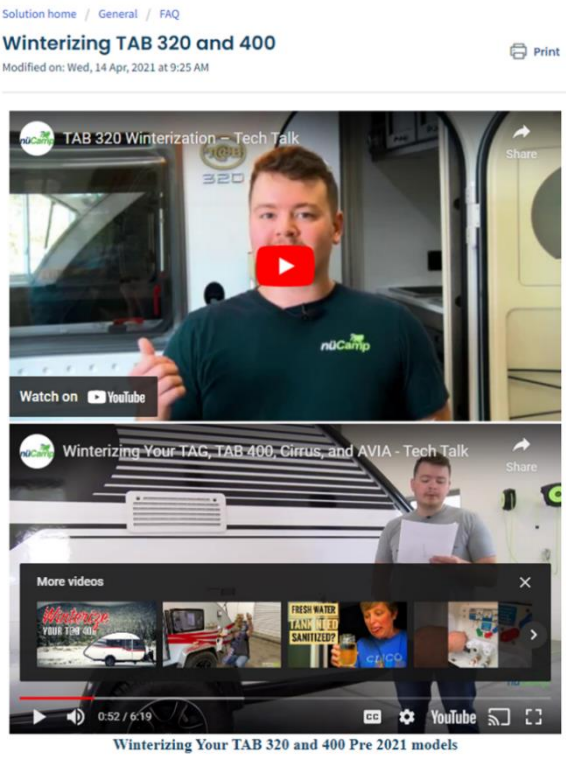
https://www.youtube.com/watch?v=drdxGky_Xo0

Key Points

- Can use cabin heating w/o water heating.
- Need special antifreeze Boiling point 185 degrees or better if you are going to use heating side only. N/A if not using heating system.
- If you blow it out use 30psi or less.

NuCamp's Winterizing Instructions

https://nucamprv.freshdesk.com/support/solutions/articles/44001780893-winterizing-tab-320-and-400



Winterizing Your TAB 320 and 400 Pre 2021 models

Includes Cirrus

What if I Get Antifreeze in the Alde?

Print

Modified on: Fri, 28 Jan, 2022 at 12:39 PM

If you're not planning on using the Alde until next year –

you can leave it in there. Then flush the system before first use next year. Antifreeze itself will not ruin the hot water tanks, it's when you have antifreeze in there and you turn the system on.

If you want to use heat in this winter

To remove it you will need to flush all the lines with fresh water – opening all the faucets including the hot water faucets.

You would then open the yellow flip up valves underneath the bed for the Alde hot water tanks, until you see fresh water coming out of the bottom of the unit.

Its going to be a little bit of a process – but you will need to ensure absolutely no antifreeze is in the Alde tanks by flushing the system if you want to use the interior heating during the winter.

TROUBLE SHOOTING ALDE SYSTEM

The Alde system has two heat sources: LP Gas and 120 Volt electric. It can operate on either or both at the same time. It can operate w/o 120 volts but requires LP Gas. It also requires a 12-volt source to operate the controls and the gas igniter. The system requires there to be water in the hot water tank and a minimum amount of glycol circulating. Most of the system failures occur because one or more of these requirements are not met. Because the Alde system has a computer which helps diagnose system failures it will display the "nature" of MOST but not all failures.

See NuCamp support articles and videos@

https://nucamprv.freshdesk.com/support/solutions

System Failures

Basic fixes before going to more detailed solutions:

System does not work on LP Gas:

1. Check to make sure that there is gas in the LP Gas tank.
2. Check to make sure that the main gas valve is fully open.
3. Check that the 12V fuse for the boiler is intact. **(*)**
4. Make sure the battery level is greater than 11 volts.(Service manual says 11.5 v)

System does not work on 120V Electric (shore power).

1. Check that there is an electricity supply (120V ~) to Alde.
2. Check breakers in Power Distribution Center and at source.
3. Check that the 12V fuse for the boiler is intact. **(*)**
4. Make sure the battery level is greater than 11 volts. .(Service manual says 11.5 v)
5. Check that the relays fitted to the boiler come on (a slight click can be heard from the relays when the heating element is switched on at the control panel).

* https://www.youtube.com/watch?v=6UWRI1Mn1YA

Control panel in "standby mode"

Notes:

1. The control panel reverts to "standby" automatically after 30 seconds.
2. When system is turned on the hot water feature automatically begins heating with LP gas. The settings must be changed to add the cabin heating function. The water heating feature can be turned off if not needed using a control panel setting.

#1 Blowing Alde 3.15a 12v Fuses

Control Panel will not work-panel is blank.

This can be a common issue and has several causes, some known and some unknown. Until it is resolved your Alde system will not work. The two primary known causes are:

1. The Alde system was not turned off before unplugging or plugging in the 120v shore power which resulted in a blown fuse.
2. The Alde system has not been turned off before connecting/disconnecting the 12v battery power which resulted in a blown fuse?
3. Grounding issue for some models. See below.

NuCamp Solutions April 2022 Control Panel Won't Come On

https://nucamprv.freshdesk.com/support/solutions/articles/44001942047-control-panel-won-t-come-on

Replacing 3.15a fuse:

Note: If you drop the fuse in the opening under the green fuse holder you will have to remove the cover panel to retrieve it. In the Cirrus 620 you will need to remove the stove top to access the fuse holder.

Replacement fuses: The Alde system comes with replacement fuses. The Alde 3.15a 12v slow blow fuse is not easily purchased in the US. You can purchase them directly from Alde/Truma (part #3010339). While there is some disagreement at Alde/Truman about using anything but the original type fuse, I was told by Truman's customer service department any 3.15a slow blow fuse will work. NuCamp recommends a 3.15a 250v 5x20mm slow blow fuse. **(Note the size: 5 x 20 mm-there are numerous size 3.15a fuses.)**

Grounding

NuCamp Solutions Feb 2022 Re Grounding Alde System

https://nucamprv.freshdesk.com/support/solutions/articles/44001786356-re-grounding-the-alde-system

1. Locate the white ground wire coming from the Alde heating system that runs to the ground bar found underneath the bench seat on the driver's side of the Unit.
2. Disconnect the ground wire from the ground bar/bus bar and add another white wire to that ground wire that is the same gauge.
3. Look for the copper ground wire that runs through the floor – that is where you will drill to run your extended ground wire through floor to the battery.
4. After you have run your wire through the floor, run it to the negative terminal on the battery.

Note: This should alleviate fuses being blown by the Alde itself. You can still blow fuses but **failing to turn the Alde touch screen control Panel OFF before you unplug/plug in the unit or turn the battery on/off.**

I am not sure if this applies to the Cirrus models.

#2 GAS FAILURE

Out of gas or gas is not igniting. Check that the gas cylinder is full. Try a different gas cylinder, ensuring it has propane gas. Check the gas regulator and that any isolation valves are open and not frozen. Ensure that gas is available. *(Tip: If you have had the gas turned off it often helps to start your range before starting other appliances*.) This message is "reset" by switching off the main switch? and switching it back on or by disconnecting the 12v supply and reconnecting it (using various methods).

The Gas Failure message is often displayed when the battery voltage is too low. See Low Battery.

NuCamp-Tech Talk Common Alde Error: Gas Failure June 2022

https://www.youtube.com/watch?v=7nAx6yzbITs&list=PLCMrvBGaOplpkvlu_zIsW-YZdR_qelvxo&index=6

#3 OVERHEAT RED FAILURE

This is one of the most common fault messages w/ various causes and solutions. The Alde manual offers the following solution based on the assumption there is air in the system.
FYI**:** ***Many owners have discovered all that is required is a "reboot". See the end of this section for an explanation.***

Bleed the system of air. Check the fluid level in the expansion tank. It should be approx. 0.5 in (1 cm) above the Min mark when cool. Check that the circulation pump is responding. Wait 15 min for the fluid to cool down. This fault can arise if the heating system is run at high power at the same time as there are air pockets in the heating system; the heating system should then be vented properly. If the fault recurs, contact a dealer. Pg 24

From Alde Service Manual

OVERHEAT RED FAIL

Caused by:

The red sensor on the boiler body (the overheating protection) has recorded a temperature over 95°C or contact fault.

Likely causes of the fault:

- No circulation means air in the system, alternatively poor or no circulation in the heating system (the circulation pump).
- Low fluid level in the heating system.

Action:

- Bleed the system.
- Check to make sure that the circulation pump is working.
- Check the fluid level in the expansion tank.

NuCamp Solutions Red Overheat Fail Jun 2022
https://nucamprv.freshdesk.com/support/solutions/articles/44001816806-red-overheat-fail

Alde: Diagnose Red Failure faults October 2018
https://www.youtube.com/watch?v=j3Zz7SL-L0o

Take 5: Troubleshooting the Alde Heat System in NuCamp T@B 400 Owner
https://www.youtube.com/watch?v=2TyPHFo7hAQ

Alde Service Manual

DRAFT

Simply “resetting” the system w/o bleeding, etc.

Many NuCamp owners report that often the “fix” is simply to do a “hard reset” (reboot) to the Alde electronics by disconnecting the 12v supply. Various methods are recommended for disconnecting the power from the Alde system. The two most common are:

1. Turn off power at the battery disconnect switch if equipped and wait a few minutes. (Note: This method may turn off all of your lights in the cabin so be prepared.)
2. Disconnect the 12v power line at the Alde circuit board and wait 5 minutes. (NuCamp says 10 minutes. Alde says “a moment”)

#4 LOW BATTERY

Alde Service Manual

BATTERY TOO LOW Caused by: The voltage at the boiler is below 10.5 volt . Likely causes of the fault: • The battery is discharged. • Contact fault in the cabling to the boiler. • The boiler is drawing abnormally high current. • Fault in the circuit board. Action: • Check the voltage at the battery. In a no-load state, it should be more than 12.2 volts. • Measure the voltage to the boiler. With the burner in operation, it should be more than 10.5 volts. • Measure the boiler’s power consumption on operation. It should be 0.3 A on stage 1 and 0.6 A on stage 2.

5 GLYCOL LEAKING

https://nucamprv.freshdesk.com/support/solutions/articles/44001783703-glycol-leaking

Solution home / TAB 320 / General

Water Draining Out from Underneath Drivers Side

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Modified on: Tue, 15 Feb, 2022 at 10:41 AM

If there is water draining from the underside around the driver side wheel area, Sink area, or overfill Drain there is a few things that may be causing the issue.

1. Drain Valves are open..
2. Alde pressure relieve valve is open – Yellow Cap
3. Alde relief valve is broken. This can occur when you do not use the included City Water pressure regulator included in your welcome packet.

#6 WATER LEAK

https://nucamprv.freshdesk.com/support/solutions/articles/44001867236-water-draining-out-from-underneath-drivers-side

Solution home / TAB 320 / General

Water Draining Out from Underneath Drivers Side

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Modified on: Tue, 15 Feb, 2022 at 10:41 AM

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1. Drain Valves are open..
2. Alde pressure relieve valve is open – Yellow Cap
3. Alde relief valve is broken. This can occur when you do not use the included City Water pressure regulator included in your welcome packet.

#7 No Hot Water

Check Nautilus panel for correct settings.

MISCELLANEOUS

Alde

US CA

2.11 FAULT MESSAGES

Low battery: 12V supply to heating system has dropped below 10.8V, possibly causing system brownout. This message clears automatically when the current reaches 11V. If the voltage decreases, various error messages can also appear. These are not actual faults. Ensure that the boiler has the right voltage.

Fan restarts: Incorrect fan speed. New start attempt is made. Repeated faults result in "Fan failure". If "Fan failure" recurs after resetting, contact a dealer. If "Fan restarts" is displayed, no action is necessary.

Gas failure: Out of gas or gas is not igniting. Check that the gas cylinder is full. Try a different gas cylinder, ensuring it is propane gas. Check the gas regulator and that any isolation valves are open and not frozen. Ensure that gas is available.

Overheat red fail: Overheat (red cable). Bleed the system of air. Check the fluid level in the expansion tank. It should be approx. 0.5 in (1 cm) above the Min mark when cool. Check that the circulation pump is responding. Wait 15 min for the fluid to cool down. This fault can arise if the heating system is run at high power at the same time as there are air pockets in the heating system; the heating system should then be vented properly. If the fault recurs, contact a dealer.

Overheat blue fail: Overheat (blue cable).

Overheat PCB: Failsafe in the heating system has been triggered. Check the fluid level in the expansion tank. It should be approx. 0.5 in (1 cm) above the Min mark when cool. Check that the heating system compartment is ventilated and that the vents are unobstructed. Do not stow items in the boiler compartment.

*** Window open:** Optional window sensor has been triggered; gas heating is suspended. This message clears automatically and gas heating resumes when the window is closed.

Heater not found: Break in communication between the Alde control panel and boiler. Check the cable between the Alde control panel and the boiler.

3rd party C. fail: Communication fault between Alde's panel and external panel.

Panel failure: Moisture is trapped in the control panel. Remove the Alde control panel from the vehicle and air it in a warm, dry place overnight.

Red connection failure: Problem with the red cable or red contacts.

Yellow connection fail: Problem with the cable between the Alde panel and the CI-bus master panel or its connectors.

To reset some of the faults and reboot, shut down the heating from the control panel and disconnect the 120V to the vehicle and disconnect 12V from the boiler.

TROUBLESHOOTING

This section is a collection of tried and true answers to the most popular troubleshooting questions posed to the nuCamp Customer Service team. These are not final answers to any issues you might have since individual product manufacturers are the final authority in determining the cause of issues. They are simply suggestions for steps you may take to resolve your issue easily. If you cannot find what troubleshooting information you need in this section, contact your nearest dealer or other qualified service technician to perform inspection and troubleshooting. Troubleshooting performed by unqualified individuals may not be covered under warranty.

ALDE® SYSTEM

1. Red overheat failure
    a. You have air-pockets in your system. Open the bleeder valves located on the Alde®. After sufficiently bleeding the Alde®, disconnect the 12v power supply line going into the Alde® control center and allow it to sit for at least 5 minutes.
    b. If that did not resolve the issue, consult your nuCamp dealer.
2. Insufficient hot water
    a. Adjust your mixing valve (located near the Alde®) by turning the valve towards the "+" symbol, allowing more hot water to enter the mixing valve.
    b. If this did not work, contact your nuCamp dealer for further instructions.
3. Control panel will not turn on
    a. Check your 3.15amp glass fuse found underneath the service hatch on your Alde® System, located in the green fuse housing. Replace.
4. Gas failure
    a. Most likely a low 12V battery. There is not enough power to deliver the propane from the tank to the Alde®.
    b. If you have a charged battery, the problem would most likely be an empty tank.
5. Alde® System not heating on shore power
    a. The Alde® System is designed to not only run on propane gas, but also 110V with 12V. When you are plugged into a household 15-amp outlet, make sure to have the Alde® KW setting on 1KW. When running the Alde® on 20 or 30-amp, change the KW setting to 2KW.
    b. Make sure the black power cord is plugged into the 110V outlet beside the Alde® boiler.

uCamp Owner's Manual Example

2021 Cirrus 620 NuCamp Owner's Manual

Sources for Manuals etc.

https://www.alde.us/manuals-and-documents/
https://nucamprv.com/documents/
https://www.nautilus.com/manuals.html

HAPPY CAMPING!